

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-58 (Cancelled).

59(New). A purified non-reducing saccharide-forming enzyme, which forms a non-reducing saccharide having a trehalose structure as an end unit from a reducing partial starch hydrolysate and which has an optimum temperature of over 40°C but below 60°C, selected from the group consisting of:

(A) an enzyme comprising the amino acid sequence of SEQ ID NO:1;

(B) a fragment of (A) and

(C) a variant of (A) comprising an amino acid sequence having at least 80% sequence identity to SEQ ID NO:1.

60(New). The purified non-reducing saccharide-forming enzyme of claim 59 which is an enzyme comprising the amino acid of SEQ ID NO:1.

61(New). The purified non-reducing saccharide-forming enzyme of claim 59 which is an enzyme consisting of the amino acid of SEQ ID NO:1.

62(New). The purified non-reducing saccharide-forming enzyme of claim 59 which is a fragment of (A).

63(New). The purified non-reducing saccharide-forming enzyme of claim 62, wherein said fragment comprises the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:3.

64(New). The purified non-reducing saccharide-forming enzyme of claim 62, wherein said fragment comprises the amino acid sequence of SEQ ID NO:4, SEQ ID NO:5, or SEQ ID NO:6.

65(New). The purified non-reducing saccharide-forming enzyme of claim 59, which is variant of (A) comprising an amino acid sequence having at least 80% sequence identity to SEQ ID NO:1.

66(New). The purified non-reducing saccharide-forming enzyme of claim 59, which has the following physicochemical properties:

(1) Action

Forming a non-reducing saccharide having a trehalose structure as an end unit from a reducing partial starch hydrolysates having a degree of glucose polymerization of 3 or higher;

(2) Molecular weight

About 75,000 \pm 10,000 daltons on sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE);

(3) Isoelectric point (pI)

About 4.5 \pm 0.5 on isoelectrophoresis using ampholyte;

(4) Optimum temperature

About 50°C when incubated at pH 6.0 for 60 min;

(5) Optimum pH

About 6.0 when incubated at 50°C for 60 min;

(6) Thermal stability

Stable up to a temperature of about 55°C when
incubated at pH 7.0 for 60 min; and

(7) pH stability

Stable at pHs of about 5.0 to about 10.0 when
incubated at 4°C for 24 hours.

67(New). The purified non-reducing saccharide forming
enzyme of claim 59, which is derived from a microorganism.

68(New). The non-reducing saccharide-forming enzyme of
claim 67, wherein said microorganism is a member of the genus
Arthrobacter.

69(New). The purified non-reducing saccharide-forming
enzyme of claim 67, wherein said microorganism is *Arthrobacter* sp. S34,
deposited under accession no. FERM BP-6450, or mutants thereof.

70(New). The non-reducing saccharide-forming enzyme of
claim 59 obtainable from a microorganism selected from the group
consisting of *Arthrobacter* sp. S34, deposited under accession no. FERM
BP-6450, and mutants thereof.